U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: CG-622
Phone: 202 475-3550
Fax: 202 475-3927
Email: CGComms@uscg.mil

2400
Docket No. 00-48

February 6, 2007

Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, SW
Washington, DC 20554

Dear Ms Dortch

The following are reply comments to WT Docket No. 00-48, Amendment of Parts 13 and 80 of the Commission's Rules Concerning Maritime Communications.

GPS requirement for VHF DSC handheld equipment.

The Radio Technical Commission for Maritime Services (RTCM), while supporting the proposal to equip VHF digital selective calling (DSC) handheld radios with Global Positioning System (GPS) capability, noted its experience that requiring GPS functionality without establishing relevant performance standards can lead to disappointing performance. Accordingly, RTCM suggested that the Commission defer its decision on such a requirement for now. RTCM also indicated it would consider the issue of VHF-DSC handheld radio performance with GPS capability, and when that consideration was complete, it would be in a better position to make recommendations on performance standards. At that time, RTCM recommended that a future Further Notice of Proposed Rulemaking be issued to include the suggested performance standards. (RTCM Comments, pp. 2-4). The Coast Guard supports this RTCM proposal, and would like to indicate its willingness to work with RTCM and the Commission in order to bring GPS functionality to all DSC-equipped handhelds in an expedited manner. RTCM further recommended, "that the Commission revise 47 CFR 80.203(n) to remove the exception for DSC capability in new applications for certification of handheld VHF-FM equipment." (RTCM Comments, p. 5). While this specific issue is not the subject of the current Further Notice of Proposed Rule Making, the Coast Guard believes that the recommendation to require DSC on all VHF marine handheld radios should be included in the further rulemaking that considers the performance standards.

If the Commission adopts RTCM's proposal regarding a future rulemaking to consider performance standards, then §80.225(a)(3), which was adopted in the Third Report and Order accompanying the Further Notice of Proposed Rule Making and addressed requirements for certification of handheld portable DSC equipment that does not meet the requirements of ITU-R M.493-11 and IEC 62238, will need to be modified. The

Coast Guard suggests that the word "non-portable" be deleted from the second line of the new §80.225(a)(2). Finally, the Coast Guard submits that a decision regarding requiring a DSC capability in all VHF handhelds should be deferred until the further rulemaking proposed by RTCM. By these changes, until the rulemaking suggested by RTCM is completed, manufacturers desiring certification of new VHF maritime handhelds would not be required to include a DSC capability in that equipment, but if they desired to do so, it would have to meet the same DSC requirements imposed on non-portable equipment. This would ensure distress calls transmitted by DSC equipment to the Coast Guard are made to proven standards, minimizing the kind of "disappointing performance" noted by RTCM.

DSC modulation rate deviation.

Sea Tow in its comments noted that "Extensive field experience by Sea Tow with fleet vessels and through Sea Smart customers using SC101 radios has shown extensive substandard DSC performance among many models and manufacturers, with misleading and potentially dangerous ramifications." (Sea Tow Services International Inc. Comments, p.2). In addition, MariTEL in its Petition for Reconsideration ("PFR") of the Third Report and Order adopted in this proceeding, noted that it had "found that some DSC equipment using the SC101 standard cannot receive on one channel the DSC signals transmitted by another device on the same channel. Therefore, a mariner using a DSC radio that attempts to transmit a distress call on channel 70 may not be heard by other mariners receiving on channel 70." (MariTEL PFR, p.1). MariTEL urged "that the FCC reconsider its decision to permit the continued certification, manufacture, importation, sale or installation of digital selective calling ("DSC") equipment that does not conform to the FCC's newly adopted standards. The continued proliferation of devices that only meet one of the former standards constitutes a threat to public safety." (*Id.)*

On November 9, 2006 Sea Tow met with the Coast Guard to describe the alleged DSC compatibility problem it and MariTEL had discovered between low cost DSC-equipped VHF radios built to RTCM's SC101 standard and its DSC base station, which could allegedly affect the reception of DSC distress alerts. Although the International Telecommunications Union specifies tolerances for most DSC signal components in its Recommendation ITU-R M.493 series, it does not specify a tolerance for the modulation (baud) rate of the transmitted signal, 1200 baud for VHF and 100 baud for MF/HF. The International Electrotechnical Commission ("IEC") requires a modulation rate tolerance of $\pm$ 30 X 10^{-6} (30 ppm) for both VHF and MF/HF signals in its IEC 61097-3 (Safety of Life at Sea Convention GMDSS DSC) and 62238-1 (non- SOLAS VHF DSC) certification standards. IEC has no published standard for non–SOLAS MF/HF DSC equipment, and RTCM SC-101 does not address signal tolerances. No available standard currently specifies a modulation rate tolerance requirement for DSC receivers. If a maritime radio manufacturer builds a DSC receiver expecting that the received DSC signal modulation tolerance will always be $\pm$ 30 X 10^{-6}, that radio may be incapable of

receiving distress alerts from certain radios, and a safety problem such as that described by Sea Tow and MariTEL could result.

Since being notified of this problem, the Coast Guard has been in discussion with Sea Tow and MariTEL, the manufacturers of SC-101 radios whose transmitted DSC signals deviated from the IEC-specified ± 30 X 10^{-6}, and with the manufacturer of the DSC base station used by MariTEL and Sea Tow, which also built the base station used in the Coast Guard's Rescue 21 project. Several SC101 VHF DSC radios apparently do deviate from 1200 baud by as much as 5000 X 10^{-6}. The Coast Guard understands that once notified, the base station manufacturer quickly corrected the problem of not receiving DSC signals which were outside of IEC's modulation rate tolerance. Operational Rescue 21 stations were apparently never affected by the problem. In discussions with the manufacturers affected, Sea Tow and MariTEL, we were not able to confirm an instance of a shipboard or handheld DSC radio being unable to receive a distress alert. The alleged problem described has also not been evident in over a decade of DSC operation (IEC 61097-3 was published in 1994, and ITU-R Rec. M.493 was first published in 1974).

However, to avoid this from ever becoming a problem, the Coast Guard recommends that the Commission require all VHF and MF/HF DSC radios certified on or after the date the rule goes into effect to meet a transmit modulation rate tolerance equivalent to IEC 61097-3 and 62238-1 (± 30 X 10^{-6}), and to additionally meet a receiver signal modulation deviation requirement of not less than ± 5000 X 10^{-6}. The Coast Guard would also suggest that the Commission test DSC-equipped radios available on the market for DSC interoperability, and if a problem is found, the Commission should work with manufacturers to recall affected radios as necessary and correct that problem.

Respectfully submitted,
UNITED STATES COAST GUARD

By: /s/ Joseph D. Hersey, Jr.
Joseph D. Hersey, Jr.
Chief, Spectrum Management Division
BY DIRECTION